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The typification of *Cordia flavescens* Aubl., the transfer of *Firensia* Scop. from *Cordia* L. (Cordiaceae, Boraginales) to the synonymy of *Ocotea* Aubl. (Lauraceae), and the identity of the species of *Firensia*

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Abstract

Firensia Scop. was based on *Cordia flavescens* Aubl., a species described and illustrated from a mixed collection that Scopoli never transferred to *Firensia*. The genus included three additional species formally named by Rafinesque. Currently the four species are placed in three different families and none retained the epithet accepted by Scopoli or given by Rafinesque for reason of priority. A lectotype is designated for *Cordia flavescens* that places *Firensia* in the synonymy of *Ocotea* (Lauraceae).

Keywords

Aublet, Boraginales, Combretaceae, *Cordia*, Lauraceae, French Guiana, Rafinesque, typification

Introduction

In the preparation of the treatment of the Boraginaceae for the Flora of the Guianas, I got intrigued by the history of *Firensia* Scop. When Scopoli (1777: 157) described *Firensia*, he included only *Cordia flavescens* Aubl. that is therefore the type of the genus. Contrary to what is stated by Jackson (Index Kewensis 1893, as reflected in IPNI (http://www.ipni.org/index.html; accessed 23.01.2013), in that work *C. flavescens* was not transferred to *Firensia*. Necker (1790, 1: 276) accepted *Firensia* as one

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of his "*species naturalis*" in a work where the nomenclature was uninominal and that is rejected as a source of names by the International Code of Botanical Nomenclature (McNeill et al. 2006, App. VI: 483). Three species were placed in *Firensia* by Rafinesque (1838: 40), two of them illegitimate renaming. Other authors ignored *Firensia* or placed it in the synonymy of *Cordia* (ex.: Candolle 1845: 471 [as "Firenzia"]). Then Kuntze (1891, 2: 977) placed them in *Lithocardium* "L. 1735". As this is a pre-1753 name, he created *Lithocardium* Kuntze with *Cordia* L. as a synonym. It is an illegitimate renaming of *Cordia*.

Methods

To solve the question of the generic and familial placement of Firensia, I studied the literature and type specimens. I looked also at printed photographs found in the cited herbarium collections, and examined scanned of specimens or photos of specimens posted online, available directly through the herbarium site, or through the sites of JSTOR or Europeana. Example: "photos F, MO!, US!; scan!". The Internet address to the scans is given in a note below the species.

A few typifications had to be made. When the type collection was known, but not the holotype, the text says: "Type:... (lectotype... ; isotypes...)". When the original description was associated with several collections of equal status or syntypes, a type collection and a lectotype were selected and the text says: "Lectotype...: ... (hololectotype...; isolectotypes...)". In both cases the information on the date of lectotypification is given next to the word lectotype.

Taxonomic treatment

Typification of *Cordia flavescens* and familial placement of *Firensia* in the Lauraceae

The name *Cordia flavescens* Aubl. was described and illustrated based on a mixture of fruiting branches of *Ocotea commutata* Nees (LAURACEAE) and flowers belonging in *Cordia*. Specimens by Aublet at BM and S represent only the *Ocotea* element (Johnston 1935: 44). This offers an opportunity to give a clear identity to the name by designating as the lectotype a specimen lacking the *Cordia* element.

Cordia flavescens Aubl. is the only species included in *Firensia* by Scopoli (1777: 157) and is therefore the type species of *Firensia* Scop. *Firensia* falls in the synonymy of *Ocotea* Aubl. 1775 and belongs in the Lauraceae.

Nomenclature stability is satisfied: *Firensia* Scop. (1777) does not have priority over *Ocotea* Aubl. (1775), and the epithet *flavescens* cannot be transferred to *Ocotea* as the name *Ocotea flavescens* Rusby (1920) applies to a different species from Colombia. Aublet's name becomes a synonym of *Ocotea commutata* (Nees) Mez.

***Ocotea* Aubl., Hist. Pl. Guiane 2: 780; 4: t. 310. 1775.**
Type: *Ocotea guianensis* Aubl.

Firensia Scop., Intr. Hist. Nat. 157. 1777.
Type: *Cordia flavescens* Aubl.

Identity of the type species and those once placed in *Firensia*

The species once placed in *Firensia* have been named or identified as species of *Cordia* L., one by Linnaeus (1757: 14) and three by Aublet (1775: 219, 224, 226; t. 86, 88, 89). None of the epithets used in *Firensia* could be kept for reason of priority. The type species, *Cordia flavescens*, and the three species of *Firensia* currently belong in three different genera and families.

1. *Cordia flavescens* Aubl., Lauraceae

***Ocotea commutata* (Nees) Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 327. 1889.**
Type: Based on *Oreodaphne commutata* Nees
Cordia flavescens Aubl., Hist. Pl. Guiane 1: 226; 3: t. 89. 1775; not *Ocotea flavescens* Rusby 1920.
Type: French Guiana. *J.B. Aublet s.n.* [specimens without the *Cordia* flowers] (lectotype here designated BM [BM-000993950; scan!]; isotypes LINN [SM 374.6], S [04-2350; scan!])
Cordia sarmentosa Lam., Tab. Encycl. Méthod. 1: 422. 1791; illegitimate renaming.
Type: Based on *Cordia flavescens* Aubl.
Oreodaphne commutata Nees, Syst. Laur. 428. 1836.
Type: French Guiana. *J. Martin s.n.* (holotype B "ex P" [photos neg. F-3643, MO!, US!; scan!]; isotypes B [2 sheets, scans!], K, P! [2 sheets, scans!] and as "*Martin 20*" P! [scan!]
Lithocardium flavescens (Aubl.) Kuntze, Revis. Gen. Pl. 2: 977. 1891.
Type: Based on *Cordia flavescens* Aubl.
Gerascanthus flavescens (Aubl.) Borhidi, Acta Bot. Hung. 34(3–4): 400. 1988.
Type: Based on *Cordia flavescens* Aubl.

Note. The holotype of *Oreodaphne commutata* can be seen at http://ww2.bgbm.org/herbarium/view_large.cfm?SpecimenPK=47688&idThumb=253360&SpecimenSequenz=1&loan=0, and the Paris isotypes at http://coldb.mnhn.fr/colweb/request.do?requestaction=exec; the lectotype of *Cordia flavescens* at http://plants.jstor.org/specimen/bm000993950, and its Stockholm isotype at http://plants.jstor.org/specimen/s04-2350?history=true.

2. *Firensia fusca* Raf., Cordiaceae

***Cordia collococca* L., Sp. Pl. ed. 2, 1: 274. 1762.**
Lectotype (designated by Miller 1988, 1999): Jamaica. *P. Browne s.n.* (hololectotype LINN, Savage Catalog number 253.8[scan!])
Firensia fusca Raf., Sylva Tellur. 40. 1838; illegitimate renaming.
Type: Based on *Cordia collococca* L.
Lithocardium collococca (L.) Kuntze, Revis. Gen. Pl. 2: 438. 1891.
Type: Based on *Cordia collococca* L.
Gerascanthus collococcus (L.) Borhidi, Acta Bot. Hung. 34(3–4): 399. 1988.
Type: Based on *Cordia collococca* L.

Notes. The hololectotype of *Cordia collococca* can be seen at [herb. LINN scan!; http://www.linnean-online.org/view/plants_alpha/cordia_callococca.html; accessed 22.01.2013].
For other synonyms, see Feuillet (2012: 160).

3. *Firensia hirsuta* (Willd.) Raf., Cordiaceae

***Cordia nodosa* Lam., Tab. Encycl. 1: 422. 1792.**
Type: Aublet (1775) Hist. Pl. Guiane 3: pl. 86.
Cordia collococca sensu J.B. Aublet, Hist. Pl. Guiane 1: 219; & 3: pl. 86. 1775; non L. 1757. (= *Cordia nodosa* Lam.)
Cordia hirsuta Willd., Sp. Pl., ed. 5 [as "4"] 1(2): 1076. 1798.
Type: Based on *Cordia nodosa* Lam.
Firensia hirsuta (Willd.) Raf., Sylva Tellur. 40. 1838.
Type: Based on *Cordia nodosa* Lam.
Lithocardium nodosum (Lam.) Kuntze, Rev. Gen. 2: 977. 1891.
Type: Based on *Cordia nodosa* Lam.

Notes. Sometimes the collection from French Guiana—J.B. Aublet s.n. (BM [scan!], LINN SM-374.5 [microfiche!], P-Rousseau 5: 181! [acquired by P only in 1953])—is cited as the type of *Cordia nodosa* and *C. hirsuta*. In fact it is unlikely that Lamarck (1792, 1, 2(1): 422) or Willdenow (1798, 1(2): 1076) saw a specimen as they only cited Aublet plate 86.
Aublet s.n. can be seen at http://plants.jstor.org/specimen/bm000906214
Cordia hirsuta Fresen. 1857 is different from *C. hirsuta* Willd. 1798.
For other synonyms, see Johnston (1935: 13–14).

4. *Firensia lutea* Raf., Combretaceae

***Buchenavia tetraphylla* (Aubl.) R.A. Howard, J. Arnold Arbor. 64(2): 266. 1983.**
Type: Based on *Cordia tetraphylla* Aubl.

Cordia tetraphylla Aubl., Hist. Pl. Guiane 1: 224; 3: t. 88. 1775.
Lectotype (designated by Howard 1983: 266): Plate, Aubl., Hist. Pl. Guiane 1: pl. 88, excl. f. 1-3 (1775).
Firensia lutea Raf., Sylva Tellur. 40. 1838; illegitimate renaming.
Type: Based on *Cordia tetraphylla* Aubl.
Lithocardium tetraphyllum (Aubl.) Kuntze, Rev. Gen. 2: 977. 1891.
Type: Based on *Cordia tetraphylla* Aubl.
Gerascanthus tetraphyllus (Aubl.) Borhidi, Acta Bot. Hung. 34(3–4): 402. 1988.
Type: Based on *Cordia tetraphylla* Aubl.

Note. For other synonyms, see Acevedo and Strong (2012: 229).

Invalid names

Ocotea commutata Nees ex Meisn., Prodr. (DC.) 15(1): 120. 1864, invalid: pro syn. *Oreodaphne commutata* Nees (= *Ocotea commutata* (Nees) Mez 1889).
Cordia echitioides Lam. ex D. Dietr., Syn. Pl. 1: 612. 1839; invalid: pro syn. *Cordia flavescens* Aubl. (= *Ocotea commutata* (Nees) Mez).

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